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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,449	07/26/2006	Yuichiro Shindo	OGOSH57USA	1284
270 7590 12/22/2010 HOWSON & HOWSON LLP 501 OFFICE CENTER DRIVE SUITE 210 FORT WASHINGTON, PA 19034			EXAMINER THAI, SUSAN	
			ART UNIT 1724	PAPER NUMBER
			NOTIFICATION DATE 12/22/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@howsonandhowson.com

Office Action Summary	Application No. 10/597,449	Applicant(s) SHINDO ET AL.	
	Examiner SUSAN THAI	Art Unit 1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20101122</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/22/10 has been entered.

Claim Status

2. Claims 1-2 and 7-10 are pending.

Information Disclosure Statement

3. The information disclosure statement filed 11/22/2010 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

4. The information disclosure statement filed 11/22/2010 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-2 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al. ("Ductility of Ultra High Purity Copper").

Regarding **claims 1-2 and 7-8**, Fujiwara discloses 8N ultra-high purity copper (abstract) where the elements O, C, N, H, S and P are 1ppm or less (see Table 1). In regards to the residual resistance ratio (RRR), applicant admitted that the RRR of 8N-9N copper is 40,000-100,000 (table 1). RRR is a property of purity, therefore conventional 8N copper would have the claimed RRR.

Although Fujiwara does not explicitly disclose that the content of impurities excluding the gas components totals no more than 0.01ppm, it is well known in the art that high purification of target materials are in demand as evidenced by the instant specification (see background art, para 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time to reduce the amount of impurities present in the target sample because it provides a higher purified target material. It is well settled that the difference in degree of purity itself does not predicate invention. In re Merz, 38 USPQ 143 and In re King et al, 43 USPQ 400.

The Supreme Court decided that a claim can be proved obvious merely by showing that the combination of known elements was obvious to try. In this regard, the Supreme Court explained that, "[w]hen there is a design need or market pressure to

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solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has a good reason to pursue the known options within his or her technical grasp.” An obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of the case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. Therefore, choosing from a finite number of identified, predictable solutions, with a reasonable expectation for success, is likely to be obvious to a person of ordinary skill in the art. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, E.).

Claim 7 is considered a product-by-process claim. The cited prior art teaches all of the positively recited structure of the claimed apparatus or product. The determination of patentability is based upon the product itself. The patentability of a product or apparatus does not depend on its method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113).

Regarding **claims 9 and 10**, Fujiwara discloses all the limitations as set forth above.

Fujiwara, however, does not explicitly disclose that the content of Ag is less than 0.005ppm, Al is less than 0.001ppm and Fe is less than 0.001ppm.

It is well known in the art that high purification of target materials are in demand as evidenced by the instant specification (see background art, para 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time to reduce the amount of impurities present in the target sample because it provides a higher purified target material. It is well settled that the difference in degree of purity itself does not predicate invention. In re Merz, 38 USPQ 143 and In re King et al, 43 USPQ 400.

The Supreme Court decided that a claim can be proved obvious merely by showing that the combination of known elements was obvious to try. In this regard, the Supreme Court explained that, “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has a good reason to pursue the known options within his or her technical grasp.” An obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of the case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. Therefore, choosing from a finite number of identified, predictable solutions, with a reasonable expectation for success, is likely to be obvious to a person of ordinary skill in the art. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, E.).

7. Claims 1-2 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al. (“Ductility of Ultra High Purity Copper”) in view of Ogata et al. (US4792369).

Regarding **claims 1-2 and 7-8**, Fujiwara discloses 8N ultra-high purity copper (abstract) where the elements O, C, N, H, S and P are 1ppm or less (see Table 1). In regards to the residual resistance ratio (RRR), applicant admitted that the RRR of 8N-9N copper is 40,000-100,000 (table 1). RRR is a property of purity, therefore conventional 8N copper would have the claimed RRR.

Fujiwara does not explicitly disclose that the content of impurities excluding the gas components totals no more than 0.01ppm.

Ogata discloses a process of obtaining high purity copper (abstract) where active carbon filtration is used to remove impurities (c4/L1-10).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the method of purification of Fujiwara by including the active carbon purifying means of Ogata because the added active carbon adsorbs and removes impurities present in the solution (c4/L1-10) thus providing product of higher purity.

Claim 7 is considered a product-by-process claim. The cited prior art teaches all of the positively recited structure of the claimed apparatus or product. The determination of patentability is based upon the product itself. The patentability of a product or apparatus does not depend on its method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113).

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8. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al. ("Ductility of Ultra High Purity Copper") in view of Ogata et al. (US4792369) as applied to claims 1 and 7 above and further in view of Itoh et al. (US5206430).

Regarding **claims 9-10**, modified Fujiwara discloses all the limitations as set forth above.

Fujiwara, however, does not explicitly disclose the silver content to be less than 0.005 ppm, Al content less than 0.001 ppm and Fe content less than 0.001 ppm.

Itoh discloses a method for obtaining high purity products (abstract) where active carbon is used as a purifying means (abstract). Itoh further teaches that the amount of active carbon used depends on the amount of catalytic component in the crude mixture (C3/L54-65) thus affecting the amount of catalyst metal remaining after purification. Therefore, the amount of catalyst metals remaining is a variable with respect to the amount of active carbon used and purity of the desired product.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the amount of active carbon used of Fujiwara by varying the amount of active carbon as taught by Itoh because the desired purity is controlled (Itoh C3/L54-65). "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." See *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). The discovery of an optimum value of a known result effective variable, without producing any new or

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unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05, II.).

Furthermore, it is well known in the art that high purification of target materials are in demand as evidenced by the instant specification (see background art, para 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time to reduce the amount of impurities present in the target sample because it provides a higher purified target material. It is well settled that the difference in degree of purity itself does not predicate invention. *In re Merz*, 38 USPQ 143 and *In re King et al*, 43 USPQ 400.

The Supreme Court decided that a claim can be proved obvious merely by showing that the combination of known elements was obvious to try. In this regard, the Supreme Court explained that, “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has a good reason to pursue the known options within his or her technical grasp.” An obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of the case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. Therefore, choosing from a finite number of identified, predictable solutions, with a reasonable expectation for success, is likely to be obvious to a person of ordinary skill in the art. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, E.).

Response to Arguments

9. Applicant's arguments with respect to claims 1-2 and 7-10 have been considered but are moot in view of the new ground(s) of rejection. The examiner is now relying on Ogata to show that active carbon filtration used in high purity copper is well known.

Applicant argues that Fujiwara does not disclose 8N when considering the impurities not zero. The examiner would like to clarify that the Fujiwara teaches impurities including zero (see Table 1). Thus, when applicant argues "when considering the content of the other impurities is not zero" is not appropriate. The examiner was not relying on the embodiment where the impurities are not zero.

Applicant further argues that the residual resistance ratio of the present invention is different from Fujiwara by providing a Declaration. The examiner is not persuaded by the declaration. The declaration does not provide factual evidence showing that the 8N copper of Fujiwara is different from that of the instant application but merely statements.

Applicant further argues that the inventors of the present application have discovered unexpected results with the copper material over that disclosed in the Fujiwara publication but does not provide any factual evidence to show of the unexpected results. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Both the instant application and that of Fujiwara disclose 8N purity copper thus the properties are the same for both.

Applicant further argues that in the Declaration the elimination of Ag from copper is difficult and there is no common sense teaching that Ag can or should be reduced beyond 0.11ppm. The examiner respectfully disagrees. The examiner currently relies on Ogata to show that the use of active carbon to remove Ag is well known in purifying copper. Furthermore, ultra high purity copper 5N through 8N shows where the metal impurities are reduced. Thus, one of ordinary skill in the art at the time of the invention would look towards further reducing the impurity concentrations in order to provide a higher purity copper.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., further reduction of particles produced by a copper sputtering target) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In regards to the Declaration provided, the examiner has considered the contents therein. Applicant states that Fujiwara discloses 7N Cu, but the examiner relied on the 8N Cu which includes purities that are zero. Applicant further states that a purification method based on activated carbon cannot simply be applied to the purification of the copper electrolyte of the present invention. The examiner respectfully disagrees. Ogata clearly teaches that purification using activated carbon for ultrahigh purity copper is known (see Ogata abstract and C4/L1-10). The figure provided in the Declaration is a general figure showing the relationship of Ag and Temperature. The factual differences

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between the instant application and that of the 8N copper of Fujiwara are not provided. Furthermore, Ogata clearly teaches that the elimination of Ag for ultrahigh purity copper is desired (see Ogata abstract and C4/L1-10). Applicant further argues that so as long as the objective and effect of the using the technology are different, the technology of the present invention can no longer be viewed as the same technology. The examiner would like to emphasize that Ogata teaches the same objective and process those the effect is also the same.

Applicant argues that Fujiwara does not disclose the specific purities as claimed. As applicant admitted in the background art section of the instant specification "...high purification of target materials is strongly demanded..." see paragraph 2 of that section. Therefore, it would have been obvious to one of ordinary skill in the art at the time to reduce the amount of impurities present in the target sample because it provides a higher purified target material. Furthermore, it is well settled that the difference in degree of purity itself does not predicate invention. In re Merz, 38 USPQ 143 and In re King et al, 43 USPQ 400.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUSAN THAI whose telephone number is (571)270-1487. The examiner can normally be reached on Monday-Thursday, 6:00 AM to 4:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/
Supervisory Patent Examiner, Art Unit 1753

/SUSAN THAI/
Examiner, Art Unit 1724